

Serial No. 09/515,348

Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Claim Rejections - 35 USC § 112

Claim 21 was rejected under 35 USC § 112, first paragraph, for failing to comply with the written description requirement. Claim 21 has been cancelled, thereby rendering the rejection moot.

Claim Rejections - 35 USC § 102 and § 103

Claim 1, as amended, recites a method of analyzing a mask manufacturing process that includes simulating lithographic processing using data received from or derived from imaging of a portion of a mask and mask design data, thereby obtaining first and second simulated wafer structures. The first and second simulated wafer structures are compared and critical dimension variations across the wafer structure are evaluated.

The claimed invention compares first and second simulated wafer structures and evaluates the critical dimension variations across the wafer structure to analyze the effect that a particular mask making process has on a wafer structure formation process.

None of Chang, Pierrat and Kamon, taken alone or in combination, disclose or fairly suggest evaluating critical dimension variations across a wafer structure. Rather, Pierrat and Change are concerned with inspecting photomasks to locate specific or localized defects on the mask, while Kamon is concerned with correcting for light proximity effects. The deficiencies of these primary references are not cured by Sheng or Fiekowsky.

For at least these reasons, it is respectfully submitted that claim 1 and claims 7-20 and 22-26 dependent therefrom distinguish patentably over the references of record. Accordingly, the rejections should be withdrawn.

Claim 4, which has been rewritten in independent form including at least some of the limitations of amended claim 1, recites a method of analyzing a mask manufacturing process that includes simulating lithographic processing using data received from or derived from imaging of a portion of a mask and mask design data, thereby obtaining first and second simulated wafer structures. A user is provided with an option of selecting a FOM by which critical dimension variations between the first and second simulated structures are to be calculated, and the critical dimension variations between the first and second simulated wafer structures are calculated based on the user-selected FOM.

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Pages 18 and 21 of the office action acknowledge that none of Chang, Pierrat and Kamon, taken alone or in combination, disclose or fairly suggest providing a user with an option of selecting a FOM by which critical dimension variations between the first and second simulated structures. The office action turns to Fiekowsky to cure the deficiencies of the primary references. Pages 18 and 21 of the office action point to column 11, lines 30-50 for a teaching of providing a user with an option of selecting a FOM by which critical dimension variations between first and second simulated structures are to be calculated.

While Fiekowsky deals with feature measurement, it lacks teaching of providing a user with an option of selecting a FOM by which critical dimension variations between first and second simulated structures are to be calculated. Further, Fiekowsky is silent with respect to critical dimension variations between the first and second simulated wafer structures being calculated based on the user-selected FOM.

For at least these reasons, it is respectfully submitted that claim 4 and claims 5-6 dependent therefrom distinguish patentably over the references of record. Accordingly, the rejections should be withdrawn.

Claim 27 recites a method of analyzing critical dimension variations caused by a manufacturing process that includes comparing first and second simulated wafer structures based on a user-selected figure of merit (FOM).

For at least the reasons discussed above with respect to independent claims 1 and 4, it is respectfully submitted that claim 27 distinguishes patentably over the references of record.

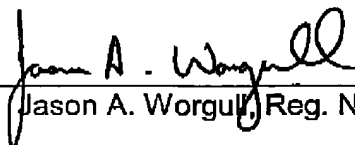
Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance.

If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

Respectfully submitted,

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